

NEW CRANE FLIES (DIPTERA: LIMONIIDAE) FROM LEBANESE AMBER

SIGITAS PODENAS, GEORGE O. POINAR, JR., AND RAIF MILKI

(SP) Department of Zoology, Vilnius University, Ciurlionio 21/27, Vilnius LT-2009, Lithuania. (e-mail: sigitas.podenas@gf.vu.lt); (GOP) Department of Entomology, Oregon State University, Corvallis, OR 97331-2907, U.S.A. (e-mail: poinarg@bcc.orst.edu); (RM) Department of Health Science, American University of Beirut, Beirut, Lebanon. (e-mail: rm01@aub.edu.lb)

Abstract.—The new genus *Lebania* Podenas and Poinar including *L. levantia* Podenas and Poinar, n. sp., and *L. longaeva* Podenas and Poinar, n. sp., is described from Lebanese amber (Lower Cretaceous). These are the first crane flies (Diptera, Limoniidae) described from these deposits.

Key Words: *Lebania* gen. n., *Lebania levantia* sp. n., *Lebania longaeva* sp. n., Limoniidae, Lebanese amber, fossil, Lower Cretaceous

Crane flies of family Limoniidae were previously unknown from Lebanese amber (Lower Cretaceous) (Evenhuis 1994) although they have been described from other Cretaceous amber deposits (Poinar 1992). In this study we describe two species (three specimens) in a new genus of the family Limoniidae from the Milki collection of Lebanese amber maintained at the American University of Beirut.

MATERIALS AND METHODS

The specimens originated from Early Cretaceous amber beds in the district of Jezzine, Lebanon. At that site, the amber occurs in primary deposits of the Neocomian division of the Early Cretaceous as well as in secondary deposits of the Aptian stage, thus ranging in age from 120–135 million years (Schlee and Dietrich 1970).

In the following descriptions, terminology of genitalia and wing venation follows that presented in the Manual of Nearctic Diptera (McAlpine 1981). Thus m-cu and Cu_{A1} are considered separate veins. Accession numbers pertaining to specimens are

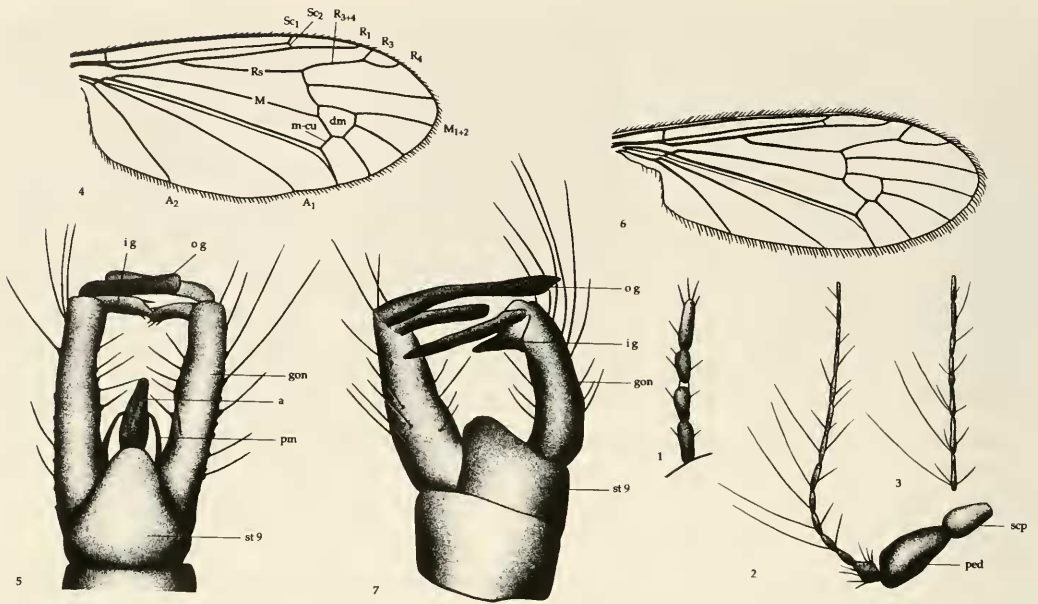
presented under the section of examined material.

Abbreviations used in the drawings are: a—aedeagus; A₁—first anal vein; A₂—second anal vein; dm—discal medial cell; gon—gonocoxite; i g—inner gonostylus; M—medial; M₁₊₂—combined first and second medial vein; m-cu—medial cubital cross vein; o g—outer gonostylus; ped—pedicel; pm—paramere; R₁—first branch of radius vein; R₃—third radial vein; R₄—fourth radial vein; R₃₊₄—combined third and fourth radial veins; Rs—radial sector; scp—scape; Sc₁—first subcostal vein; Sc₂—second subcostal vein; st 9—ninth sternite.

Lebania Podenas and Poinar, new genus

Type species.—*Lebania levantia*, n. sp.

Description.—Head dark. Vertex forming wide crest. Antenna short; if bent backwards, reaching wing base; both basal segments thick, flagellum very thin, rod-like; scape cylindrical, pedicel pear-shaped, about 1.7× as long as scape; first flagellomere with widened central part, other flagel-



Figs. 1-7. 1-5, *Lebania levantia*. 1, Maxillary palpus, paratype. 2, Antenna, holotype. 3, Tip of antenna, holotype. 4, Wing, holotype. 5, Male genitalia, ventral view, holotype. 6-7, *Lebania longaeva*, holotype. 6, Wing. 7, Male genitalia, ventral view.

lomeris elongated, nearly cylindrical with somewhat flattened basal parts; verticils long, especially on middle segments, exceeding length of respective segment some 4 or 5 times; apical segment large, nearly as long as preceding segment. Wings comparatively wide, without any dark spots except faint stigma; veins brown. Venation: Sc_1 ends just before end of R_s ; Sc_2 close to tip of Sc_1 ; R_s slightly arcuated at base; R_1 ends opposite fork of R_3 and R_4 ; r absent; R_3 and R_4 short; discal cell closed; M_1 entirely fused with M_2 ; cross-vein $m-cu$ far removed distally from fork of M , close to distal end of discal cell; anal veins divergent, A_2 comparatively short; anterior arculus (vein connecting R with Cu) missing. Meron small. Front leg with one tibial spur; tibiae of middle and posterior legs with two spurs. Abdomen brown, covered with long yellowish hairs. Male genitalia not inverted, with elongated, nearly cylindrical gonocoxites; two simple gonostyles. Female—unknown.

Etymology.—The genus name is based

on Lebanon, the country where the Lower Cretaceous amber deposits are located.

***Lebania levantia* Podenas and Poinar,
new species**

(Figs. 1-5)

Diagnosis.—General coloration dark brown due to oxidation in amber. Wings brownish, clear, without any darker spots except very slightly darkened stigma. Male genitalia with elongated gonocoxites, long, slender and simple gonostylus; inner gonostyle bearing few strong setae near apicies.

Male.—Body length 2.4-2.5 mm, wing length 2.1 mm. Head blackened. Vertex forming wide crest. Rostrum, mouth parts and palpi black. Palpus 0.2 mm long. Basal segment of palpus elongated (Fig. 1); second and third segments somewhat shorter, both nearly equal in length; apical segment elongated, $1.6\times$ as long as preceding segment. Antenna short (Fig. 2), 15- (or 14-) segmented (limits of apical segments not clear), about 0.7 mm long, brown; if bent backwards, reaching base of wing. Both

basal segments thick, flagellum very thin, rod-like; scape cylindrical, pedicel pear-shaped, $1.7\times$ as long as scape and very wide; flagellomeres elongated, nearly cylindrical with somewhat flattened basal part; verticils long, especially on middle segments exceeding length of respective segment about five times; apical segment (Fig. 3) long, nearly as long as preceding segment.

Dorsum of thorax dark brown, pleura blackened. Wing (Fig. 4) very wide, brownish, without dark spots except for faint stigma. Veins brown. Venation; Sc_1 ends opposite end of R_s ; Sc_2 close to tip of Sc_1 ; R_s long and nearly straight, just slightly arcuated at base; R_1 ends just before fork of R_{3+4} ; R_{3+4} about twice as long as R_4 ; r absent; R_3 very short. Discal medial cell wide, just slightly longer than wide, with narrow base and strongly widened distal part; cross-vein $m-cu$ far removed distally from fork of M , close to distal end of discal medial cell; anal veins strongly divergent, A_2 comparatively short; anterior arculus missing; anal angle wide. Halter brownish, 0.3 mm long. Coxae, trochanters, femora and tibiae dark brown, tarsi brown; femur II: 0.8–1.0 mm, III: 0.8–1.5 mm, tibia II: 0.8–1.0 mm, tarsus II: 0.8–1.1 mm; legs covered with short yellowish hairs. Tibiae of middle and posterior legs with two strong spurs. Claws narrow and elongated without tooth, arolium needle-like.

Abdomen brown, covered with long yellowish hairs. Genitalia (Fig. 5) dark brown; ninth tergite could be viewed only laterally, posterior border slightly lifted; gonocoxite elongated, nearly cylindrical; outer gonostylus long and slender; inner gonostylus about two-thirds length of outer gonostylus, with somewhat narrowed apex, bearing few strong setae; parameres awl-shaped; aedeagus simple, elongated with widened base.

Female.—Unknown.

Material examined.—Holotype: male, Milki collection at the American University of Beirut: (Acc. # 194–32), Lebanese am-

ber. Paratype male, same as holotype (Acc. # 194-15).

Etymology.—The species name is based on the region (Levant) where the amber originated.

***Lebania longaeva* Podenas and Poinar,
new species
(Figs. 6–7)**

Diagnosis.—General coloration dark brown due to oxidation in amber. Wings brownish, clear, without dark spots except for slightly darkened stigma. Male terminalia with elongated gonocoxites, long slender outer gonostylus and shorter inner gonostylus. *Lebania longaeva* n. sp. differs from the foregoing species by the structure of the male genitalia (Figs. 5, 7), position of M vein, and longer setae on dorsal surface of posterior femora and tibia.

Male.—Body length 2.2 mm, wing length 2.0 mm. Head blackened. Vertex forming wide crest. Rostrum, mouth parts and palpi black. Antenna short, brown; if bent backwards, reaching base of wing. Both basal segments thick, flagellum very thin, rod-like; scape cylindrical, pedicel pear-shaped, about twice as long as scape; flagellomeres elongated, nearly cylindrical with somewhat flattened basal part; verticils long, especially on middle segments exceeding length of respective segment about three times; apical segment nearly as long as preceding segment.

Dorsum of thorax dark brown, pleura blackened. Wing (Fig. 6) not widened, brownish, without dark spots, except for nearly indistinct stigma. Veins brown. Venation: Sc_1 ends opposite the end of R_s ; Sc_2 close to Sc_1 tip; R_s slightly arcuated at base; R_1 ends just before fork of R_{3+4} ; R_{3+4} $1.6\times$ longer than R_4 ; r missing; R_3 comparatively short. Discal medial cell twice as long as wide, with narrow base and widening distally; cross-vein $m-cu$ far removed distally from fork of M , close to distal end of discal medial cell; anal veins divergent, A_2 comparatively short; anterior arculus missing; anal angle wide. Halter brownish, 0.3 mm

long. Coxae, trochanters, femora and tibiae dark brown, tarsi brown; femur I: 0.9 mm, III: 0.9 mm, tibia I: 1.2 mm, III: 0.9 mm, tarsus III: 0.8 mm; legs covered with short, yellowish hairs, posterior femur and tibia with long, yellowish, erect setae, about five times longer than diameter of leg. Front leg with one tibial spur; tibia of posterior leg with two strong spurs.

Abdomen brown, covered with long yellowish hairs. Genitalia (Fig. 7) dark brown; gonocoxite elongated, nearly cylindrical, with long setae; outer gonostylus long and slender; inner gonostylus also slender, about two-thirds length of outer gonostylus.

Female.—Unknown.

Material examined.—Holotype: male, Milki collection at the American University of Beirut, (Acc. # 194-110), Lebanese amber.

Etymology.—The species name *longaeva* is Latin for ancient.

DISCUSSION

The new genus *Lebania* resembles certain genera of the Eriopterinae, such as *Rhabdomastix* Skuse or *Gonomyia* Meigen, but because of the well developed tibial spurs, it falls into Hexatominae (or Hexatomi of American authors) (Alexander and Byers 1981, Savchenko 1989). The new genus is characterized by very primitive male genitalia, such as nearly cylindrical gonocoxites which are elongated without additional structures and two pairs of simple gonostyles. The wing venation is similar to that of *Rhabdomastix*, but the anterior arculus or that part of the arculus from R to M is missing. A very specific feature of *Lebania* is the extremely enlarged pedicel, which is usually small in

other crane flies. Differences between both newly described species occur in the wing venation: cell R_3 is smaller, M vein longer, the discal cell is wider and the anal veins are more divergent in *L. levantia* (Figs. 4, 6). With the male genitalia, the outer gonostylus of *L. levantia* is shorter and inner gonostylus clearly longer than in *L. longaeva* and the gonocoxites are comparatively longer and more narrow in *L. levantia*. (Figs. 5, 7). Also the posterior legs of *L. longaeva* have very long hairs on the dorsal surface of the femorae and tibiae, while these hairs are not distinguished from others on the legs of *L. levantia*.

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